



**RECRA
ENVIRONMENTAL
INC.**

H0506-1 MAY/RC
0058428
Chemical and Environmental Measurement Information

**Recra LabNet Philadelphia
Analytical Report**

Client : TNU-HANFORD B99-078
RFW# : 9908L906
SDG/SAF# : B99-078/H0506

W.O.# : 10985-001-001-9999-00
Date Received: 08-27-99

REVISION

METALS CASE NARRATIVE

This package has been revised to include the addition of Antimony and Thallium.

1. This narrative covers the analyses of 8 soil samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. All cooler temperatures have been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. The matrix spike (MS) recoveries for 2 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

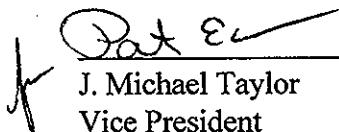
RECEIVED
JAN 18 2000
EDMC

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of **027** pages.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at the following concentration level:

<u>Sample ID</u>	<u>Element</u>	<u>PDS Concentration (ppb)</u>	<u>PDS % Recovery</u>
B0W6B0	Nickel	500	105.6
	Antimony	500	103.6

12. The duplicate analyses for 5 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.


J. Michael Taylor

Vice President

Philadelphia Analytical Laboratory

mld/m08-906r

11-11-99
Date



002

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this
 Recra Lot#: 9908L906

Leaching Procedure: 1310 1311 1312 Other: _____

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A 3010A 3015 3020A 3050A 3051 200.7 SS17
Other: _____

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Antimony	<u>✓ 6010B</u> <u>7041⁵</u>	<u>200.7</u> <u>204.2</u>			<u>99</u>
Arsenic	<u>✓ 6010B</u> <u>7060A⁵</u>	<u>200.7</u> <u>206.2</u>	<u>3113B</u>		<u>99</u>
Barium	<u>✓ 6010B</u>	<u>200.7</u>			<u>99</u>
Beryllium	<u>✓ 6010B</u>	<u>200.7</u>			<u>99</u>
Bismuth	<u>6010B¹</u>	<u>200.7¹</u>		<u>1620</u>	<u>99</u>
Boron	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Cadmium	<u>✓ 6010B</u> <u>7131A⁵</u>	<u>200.7</u> <u>213.2</u>			<u>99</u>
Calcium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Chromium	<u>✓ 6010B</u> <u>7191⁵</u>	<u>200.7</u> <u>218.2</u>			<u>SS17</u>
Cobalt	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Copper	<u>✓ 6010B</u> <u>7211⁵</u>	<u>200.7</u> <u>220.2</u>			<u>99</u>
Iron	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Lead	<u>✓ 6010B</u> <u>7421⁵</u>	<u>200.7</u> <u>239.2</u>	<u>3113B</u>		<u>99</u>
Lithium	<u>6010B</u> <u>7430⁴</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Magnesium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Manganese	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Mercury	<u>7470A³</u> <u>✓ 7471A³</u>	<u>245.1²</u> <u>245.5²</u>			<u>99</u>
Molybdenum	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Nickel	<u>✓ 6010B</u>	<u>200.7</u>			<u>99</u>
Potassium	<u>6010B</u> <u>7610⁴</u>	<u>200.7</u> <u>258.1⁴</u>			<u>99</u>
Rare Earths	<u>✓ 6010B¹</u>	<u>200.7¹</u>		<u>1620</u>	<u>99</u>
Selenium	<u>✓ 6010B</u> <u>7740⁵</u>	<u>200.7</u> <u>270.2</u>	<u>3113B</u>		<u>99</u>
Silicon	<u>6010B¹</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silica	<u>6010B</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silver	<u>✓ 6010B</u> <u>7761⁵</u>	<u>200.7</u> <u>272.2</u>			<u>99</u>
Sodium	<u>6010B</u> <u>7770⁴</u>	<u>200.7</u> <u>273.1⁴</u>			<u>99</u>
Strontium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Thallium	<u>✓ 6010B</u> <u>7841⁵</u>	<u>200.7</u> <u>279.2</u> <u>200.9</u>			<u>99</u>
Tin	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Titanium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Uranium	<u>6010B¹</u>	<u>200.7¹</u>		<u>1620</u>	<u>99</u>
Vanadium	<u>✓ 6010B</u>	<u>200.7</u>			<u>99</u>
Zinc	<u>✓ 6010B</u>	<u>200.7</u>			<u>99</u>
Zirconium	<u>6010B¹</u>	<u>200.7¹</u>		<u>1620</u>	<u>99</u>

Other: _____

Method: _____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 11/11/99

CLIENT: TNU-HANFORD B99-078

WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L906

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING		DILUTION FACTOR
					LIMIT		
-001	BOW6B0	Silver, Total	0.09 u	MG/KG	0.09		1.0
		Arsenic, Total	1.7	MG/KG	0.28		1.0
		Barium, Total	47.7	MG/KG	0.03		1.0
		Beryllium, Total	0.12	MG/KG	0.009		1.0
		Cadmium, Total	0.09	MG/KG	0.03		1.0
		Chromium, Total	6.3	MG/KG	0.07		1.0
		Copper, Total	10.4	MG/KG	0.10		1.0
		Mercury, Total	0.02 u	MG/KG	0.02		1.0
		Nickel, Total	15.9	MG/KG	0.10		1.0
		Lead, Total	2.7	MG/KG	0.18		1.0
		Antimony, Total	0.25	MG/KG	0.21		1.0
		Selenium, Total	0.31 u	MG/KG	0.31		1.0
		Thallium, Total	0.81	MG/KG	0.45		1.0
		Vanadium, Total	27.7	MG/KG	0.05		1.0
-002	BOW699	Zinc, Total	28.2	MG/KG	0.07		1.0
		Silver, Total	0.08 u	MG/KG	0.08		1.0
		Arsenic, Total	2.9	MG/KG	0.29		1.0
		Barium, Total	55.3	MG/KG	0.03		1.0
		Beryllium, Total	0.18	MG/KG	0.008		1.0
		Cadmium, Total	0.07	MG/KG	0.03		1.0
		Chromium, Total	4.8	MG/KG	0.07		1.0
		Copper, Total	12.3	MG/KG	0.10		1.0
		Mercury, Total	0.02 u	MG/KG	0.02		1.0
		Nickel, Total	6.5	MG/KG	0.10		1.0
		Lead, Total	3.5	MG/KG	0.18		1.0
		Antimony, Total	0.40	MG/KG	0.22		1.0
		Selenium, Total	0.32 u	MG/KG	0.32		1.0
		Thallium, Total	0.68	MG/KG	0.46		1.0
		Vanadium, Total	37.7	MG/KG	0.05		1.0
		Zinc, Total	37.9	MG/KG	0.07		1.0

INORGANICS DATA SUMMARY REPORT 11/11/99

CLIENT: TNU-HANFORD B99-078

WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L906

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	B0W697	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	3.0	MG/KG	0.32	1.0
		Barium, Total	80.3	MG/KG	0.03	1.0
		Beryllium, Total	0.18	MG/KG	0.009	1.0
		Cadmium, Total	0.22	MG/KG	0.03	1.0
		Chromium, Total	5.9	MG/KG	0.08	1.0
		Copper, Total	14.7	MG/KG	0.12	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Nickel, Total	8.7	MG/KG	0.12	1.0
		Lead, Total	4.5	MG/KG	0.21	1.0
		Antimony, Total	0.30	MG/KG	0.24	1.0
		Selenium, Total	0.36 u	MG/KG	0.36	1.0
		Thallium, Total	0.68	MG/KG	0.52	1.0
		Vanadium, Total	47.3	MG/KG	0.06	1.0
		Zinc, Total	50.1	MG/KG	0.08	1.0
-004	B0W694	Silver, Total	0.13 u	MG/KG	0.13	1.0
		Arsenic, Total	7.6	MG/KG	0.45	1.0
		Barium, Total	115	MG/KG	0.04	1.0
		Beryllium, Total	0.21	MG/KG	0.01	1.0
		Cadmium, Total	1.7	MG/KG	0.04	1.0
		Chromium, Total	24.3	MG/KG	0.11	1.0
		Copper, Total	58.8	MG/KG	0.16	1.0
		Mercury, Total	0.24	MG/KG	0.02	1.0
		Nickel, Total	11.3	MG/KG	0.16	1.0
		Lead, Total	35.5	MG/KG	0.29	1.0
		Antimony, Total	1.0	MG/KG	0.34	1.0
		Selenium, Total	1.5	MG/KG	0.51	1.0
		Thallium, Total	1.7	MG/KG	0.73	1.0
		Vanadium, Total	60.4	MG/KG	0.08	1.0
		Zinc, Total	204	MG/KG	0.11	1.0

006

INORGANICS DATA SUMMARY REPORT 11/11/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9908L906

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING		DILUTION FACTOR
					LIMIT	-----	
-005	BOW692	Silver, Total	0.11	u	MG/KG	0.11	1.0
		Arsenic, Total	1.9		MG/KG	0.23	1.0
		Barium, Total	73.7		MG/KG	0.02	1.0
		Beryllium, Total	0.13		MG/KG	0.01	1.0
		Cadmium, Total	0.51		MG/KG	0.02	1.0
		Chromium, Total	8.3		MG/KG	0.05	1.0
		Copper, Total	15.3		MG/KG	0.08	1.0
		Mercury, Total	0.02	u	MG/KG	0.02	1.0
		Nickel, Total	7.4		MG/KG	0.08	1.0
		Lead, Total	5.5		MG/KG	0.14	1.0
		Antimony, Total	0.24		MG/KG	0.17	1.0
		Selenium, Total	0.25	u	MG/KG	0.25	1.0
		Thallium, Total	0.74		MG/KG	0.36	1.0
		Vanadium, Total	56.5		MG/KG	0.04	1.0
-006	BOW6B1	Zinc, Total	82.1		MG/KG	0.05	1.0
		Silver, Total	0.08	u	MG/KG	0.08	1.0
		Arsenic, Total	3.2		MG/KG	0.29	1.0
		Barium, Total	44.3		MG/KG	0.03	1.0
		Beryllium, Total	0.15		MG/KG	0.008	1.0
		Cadmium, Total	0.08		MG/KG	0.03	1.0
		Chromium, Total	5.5		MG/KG	0.07	1.0
		Copper, Total	12.3		MG/KG	0.11	1.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Nickel, Total	6.7		MG/KG	0.11	1.0
		Lead, Total	2.9		MG/KG	0.19	1.0
		Antimony, Total	0.26		MG/KG	0.22	1.0
		Selenium, Total	0.33	u	MG/KG	0.33	1.0
		Thallium, Total	0.76		MG/KG	0.47	1.0
		Vanadium, Total	40.5		MG/KG	0.05	1.0
		Zinc, Total	35.0		MG/KG	0.07	1.0

INORGANICS DATA SUMMARY REPORT 11/11/99

CLIENT: TNU-HANFORD B99-078

WORK ORDER: 10985-001-001-9999-00

RCRA LOT #: 9908L906

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	BOW693	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Arsenic, Total	2.0	MG/KG	0.32	1.0
		Barium, Total	73.2	MG/KG	0.03	1.0
		Beryllium, Total	0.19	MG/KG	0.01	1.0
		Cadmium, Total	0.50	MG/KG	0.03	1.0
		Chromium, Total	8.4	MG/KG	0.08	1.0
		Copper, Total	15.2	MG/KG	0.12	1.0
		Mercury, Total	0.02	MG/KG	0.01	1.0
		Nickel, Total	8.4	MG/KG	0.12	1.0
		Lead, Total	5.7	MG/KG	0.20	1.0
		Antimony, Total	0.52	MG/KG	0.24	1.0
		Selenium, Total	0.35 u	MG/KG	0.35	1.0
		Thallium, Total	0.58	MG/KG	0.51	1.0
		Vanadium, Total	54.7	MG/KG	0.06	1.0
		Zinc, Total	82.4	MG/KG	0.08	1.0
-008	BOW698	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	2.5	MG/KG	0.30	1.0
		Barium, Total	38.6	MG/KG	0.03	1.0
		Beryllium, Total	0.13	MG/KG	0.008	1.0
		Cadmium, Total	0.08	MG/KG	0.03	1.0
		Chromium, Total	3.6	MG/KG	0.07	1.0
		Copper, Total	13.2	MG/KG	0.11	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Nickel, Total	7.3	MG/KG	0.11	1.0
		Lead, Total	2.8	MG/KG	0.19	1.0
		Antimony, Total	0.40	MG/KG	0.23	1.0
		Selenium, Total	0.34 u	MG/KG	0.34	1.0
		Thallium, Total	0.74	MG/KG	0.48	1.0
		Vanadium, Total	45.5	MG/KG	0.05	1.0
		Zinc, Total	38.3	MG/KG	0.07	1.0

008

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/11/99

CLIENT: TNU-HANFORD B99-078

RCRA LOT #: 9908L906

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING		DILUTION FACTOR
					LIMIT		
BLANK1	99L0638-MB1	Silver, Total	0.10	u MG/KG	0.10		1.0
		Beryllium, Total	0.01	u MG/KG	0.01		1.0
BLANK1	99L0624-MB1	Arsenic, Total	0.33	u MG/KG	0.33		1.0
		Barium, Total	0.12	u MG/KG	0.03		1.0
		Cadmium, Total	0.03	u MG/KG	0.03		1.0
		Chromium, Total	0.10	u MG/KG	0.08		1.0
		Copper, Total	0.12	u MG/KG	0.12		1.0
		Nickel, Total	0.12	u MG/KG	0.12		1.0
		Lead, Total	0.21	u MG/KG	0.21		1.0
		Antimony, Total	0.25	u MG/KG	0.25		1.0
		Selenium, Total	0.37	u MG/KG	0.37		1.0
		Thallium, Total	0.53	u MG/KG	0.53		1.0
		Vanadium, Total	0.06	u MG/KG	0.06		1.0
		Zinc, Total	0.11	u MG/KG	0.08		1.0
BLANK1	99C0256-MB1	Mercury, Total	0.02	u MG/KG	0.02		1.0

009

INORGANICS ACCURACY REPORT 11/11/99

CLIENT: TNU-HANFORD B99-078

RECRA LOT #: 9908L906

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	BOW6B0	Silver, Total	4.5	0.09u	4.9	91.8	1.0
		Arsenic, Total	159	1.7	166	94.6	1.0
		Barium, Total	205	47.7	166	94.6	1.0
		Beryllium, Total	4.5	0.12	4.9	89.4	1.0
		Cadmium, Total	3.9	0.09	4.2	90.7	1.0
		Chromium, Total	20.3	6.3	16.6	84.3	1.0
		Copper, Total	30.3	10.4	20.8	95.7	1.0
		Mercury, Total	0.16	0.02u	0.16	100	1.0
		Nickel, Total	43.5	15.9	41.6	66.3	1.0
		Lead, Total	41.7	2.7	41.6	93.8	1.0
		Antimony, Total	22.7	0.25	41.6	54.0	1.0
		Selenium, Total	154	0.31u	166	92.7	1.0
		Thallium, Total	160	0.81	166	95.7	1.0
		Vanadium, Total	68.3	27.7	41.6	97.6	1.0
		Zinc, Total	65.4	28.2	41.6	89.4	1.0

0/0

INORGANICS PRECISION REPORT 11/11/99

CLIENT: TNU-HANFORD B99-078

WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L906

SAMPLE	SITE ID	ANALYTE	INITIAL		DILUTION FACTOR (REP)	
			RESULT	REPLICATE RPD		
-001REP	B0W6B0	Silver, Total	0.09u	0.08u	NC	1.0
		Arsenic, Total	1.7	1.8	5.7	1.0
		Barium, Total	47.7	45.8	4.1	1.0
		Beryllium, Total	0.12	0.15	20.9	1.0
		Cadmium, Total	0.09	0.05	52.2	1.0
		Chromium, Total	6.3	5.1	21.1	1.0
		Copper, Total	10.4	10.6	1.9	1.0
		Mercury, Total	0.02u	0.01u	NC	1.0
		Nickel, Total	15.9	5.7	94.4	1.0
		Lead, Total	2.7	2.5	7.7	1.0
		Antimony, Total	0.25	0.24	3.8	1.0
		Selenium, Total	0.31u	0.33u	NC	1.0
		Thallium, Total	0.81	0.65	21.5	1.0
		Vanadium, Total	27.7	23.4	16.8	1.0
		Zinc, Total	28.2	27.7	1.8	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/11/99

CLIENT: TNU-Hanford B99-078

WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9908L906

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	%RECOV
			SAMPLE	AMOUNT	
LCS1	99L0638-LC1	Silver, LCS	48.9	50.0	MG/KG 97.8
		Beryllium, LCS	24.2	25.0	MG/KG 96.8
LCS1	99L0624-LC1	Arsenic, LCS	965	1000	MG/KG 96.5
		Barium, LCS	488	500	MG/KG 97.5
		Cadmium, LCS	24.2	25.0	MG/KG 96.8
		Chromium, LCS	49.2	50.0	MG/KG 98.4
		Copper, LCS	122	125	MG/KG 97.6
		Nickel, LCS	191	200	MG/KG 95.6
		Lead, LCS	243	250	MG/KG 97.2
		Antimony, LCS	284	300	MG/KG 94.6
		Selenium, LCS	940	1000	MG/KG 94.0
		Thallium, LCS	1000	1000	MG/KG 100.2
		Vanadium, LCS	249	250	MG/KG 99.7
		Zinc, LCS	96.1	100	MG/KG 96.1
LCS1	99C0256-LC1	Mercury, LCS	0.96	1.0	MG/KG 96.0

012

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/27/99

RFW LOT #: 9908L906

CLIENT ID / ANALYSIS	RFW #	MTX	PREP #	COLLECTION EXTR/PREP	ANALYSIS
B0W6B0					
SILVER, TOTAL	001	S	99L0638	08/25/99	09/22/99
SILVER, TOTAL	001 REP	S	99L0638	08/25/99	09/22/99
SILVER, TOTAL	001 MS	S	99L0638	08/25/99	09/22/99
ARSENIC, TOTAL	001	S	99L0624	08/25/99	09/14/99
ARSENIC, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99
ARSENIC, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99
BARIUM, TOTAL	001	S	99L0624	08/25/99	09/14/99
BARIUM, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99
BARIUM, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99
BERYLLIUM, TOTAL	001	S	99L0638	08/25/99	09/22/99
BERYLLIUM, TOTAL	001 REP	S	99L0638	08/25/99	09/22/99
BERYLLIUM, TOTAL	001 MS	S	99L0638	08/25/99	09/22/99
CADMIUM, TOTAL	001	S	99L0624	08/25/99	09/14/99
CADMIUM, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99
CADMIUM, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99
CHROMIUM, TOTAL	001	S	99L0624	08/25/99	09/14/99
CHROMIUM, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99
CHROMIUM, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99
COPPER, TOTAL	001	S	99L0624	08/25/99	09/14/99
COPPER, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99
COPPER, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99
MERCURY, TOTAL	001	S	99C0256	08/25/99	08/30/99
MERCURY, TOTAL	001 REP	S	99C0256	08/25/99	08/30/99
MERCURY, TOTAL	001 MS	S	99C0256	08/25/99	08/30/99
NICKEL, TOTAL	001	S	99L0624	08/25/99	09/14/99
NICKEL, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99
NICKEL, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99
LEAD, TOTAL	001	S	99L0624	08/25/99	09/14/99
LEAD, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99
LEAD, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99
ANTIMONY, TOTAL	001	S	99L0624	08/25/99	09/14/99
ANTIMONY, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99
ANTIMONY, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99
SELENIUM, TOTAL	001	S	99L0624	08/25/99	09/14/99
SELENIUM, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99

013

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/27/99

RFW LOT # : 9908L906

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99
THALLIUM, TOTAL	001	S	99L0624	08/25/99	09/14/99
THALLIUM, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99
THALLIUM, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99
VANADIUM, TOTAL	001	S	99L0624	08/25/99	09/14/99
VANADIUM, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99
VANADIUM, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99
ZINC, TOTAL	001	S	99L0624	08/25/99	09/14/99
ZINC, TOTAL	001 REP	S	99L0624	08/25/99	09/14/99
ZINC, TOTAL	001 MS	S	99L0624	08/25/99	09/14/99

BOW699

SILVER, TOTAL	002	S	99L0638	08/25/99	09/22/99
ARSENIC, TOTAL	002	S	99L0624	08/25/99	09/14/99
BARIUM, TOTAL	002	S	99L0624	08/25/99	09/14/99
BERYLLIUM, TOTAL	002	S	99L0638	08/25/99	09/22/99
CADMNIUM, TOTAL	002	S	99L0624	08/25/99	09/14/99
CHROMIUM, TOTAL	002	S	99L0624	08/25/99	09/14/99
COPPER, TOTAL	002	S	99L0624	08/25/99	09/14/99
MERCURY, TOTAL	002	S	99C0256	08/25/99	08/30/99
NICKEL, TOTAL	002	S	99L0624	08/25/99	09/14/99
LEAD, TOTAL	002	S	99L0624	08/25/99	09/14/99
ANTIMONY, TOTAL	002	S	99L0624	08/25/99	09/14/99
SELENIUM, TOTAL	002	S	99L0624	08/25/99	09/14/99
THALLIUM, TOTAL	002	S	99L0624	08/25/99	09/14/99
VANADIUM, TOTAL	002	S	99L0624	08/25/99	09/14/99
ZINC, TOTAL	002	S	99L0624	08/25/99	09/14/99

BOW697

SILVER, TOTAL	003	S	99L0638	08/25/99	09/22/99
ARSENIC, TOTAL	003	S	99L0624	08/25/99	09/14/99
BARIUM, TOTAL	003	S	99L0624	08/25/99	09/14/99
BERYLLIUM, TOTAL	003	S	99L0638	08/25/99	09/22/99
CADMNIUM, TOTAL	003	S	99L0624	08/25/99	09/14/99
CHROMIUM, TOTAL	003	S	99L0624	08/25/99	09/14/99
COPPER, TOTAL	003	S	99L0624	08/25/99	09/14/99

014

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/27/99

RFW LOT # :9908L906

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION EXTR/PREP	ANALYSIS
MERCURY, TOTAL	003	S	99C0256	08/25/99	08/30/99
NICKEL, TOTAL	003	S	99L0624	08/25/99	09/14/99
LEAD, TOTAL	003	S	99L0624	08/25/99	09/14/99
ANTIMONY, TOTAL	003	S	99L0624	08/25/99	09/14/99
SELENIUM, TOTAL	003	S	99L0624	08/25/99	09/14/99
THALLIUM, TOTAL	003	S	99L0624	08/25/99	09/14/99
VANADIUM, TOTAL	003	S	99L0624	08/25/99	09/14/99
ZINC, TOTAL	003	S	99L0624	08/25/99	09/14/99

BOW694

SILVER, TOTAL	004	S	99L0638	08/25/99	09/22/99
ARSENIC, TOTAL	004	S	99L0624	08/25/99	09/14/99
BARIUM, TOTAL	004	S	99L0624	08/25/99	09/14/99
BERYLLIUM, TOTAL	004	S	99L0638	08/25/99	09/22/99
CADMUM, TOTAL	004	S	99L0624	08/25/99	09/14/99
CHROMIUM, TOTAL	004	S	99L0624	08/25/99	09/14/99
COPPER, TOTAL	004	S	99L0624	08/25/99	09/14/99
MERCURY, TOTAL	004	S	99C0256	08/25/99	08/30/99
NICKEL, TOTAL	004	S	99L0624	08/25/99	09/14/99
LEAD, TOTAL	004	S	99L0624	08/25/99	09/14/99
ANTIMONY, TOTAL	004	S	99L0624	08/25/99	09/14/99
SELENIUM, TOTAL	004	S	99L0624	08/25/99	09/14/99
THALLIUM, TOTAL	004	S	99L0624	08/25/99	09/14/99
VANADIUM, TOTAL	004	S	99L0624	08/25/99	09/14/99
ZINC, TOTAL	004	S	99L0624	08/25/99	09/14/99

BOW692

SILVER, TOTAL	005	S	99L0638	08/25/99	09/22/99
ARSENIC, TOTAL	005	S	99L0624	08/25/99	09/14/99
BARIUM, TOTAL	005	S	99L0624	08/25/99	09/14/99
BERYLLIUM, TOTAL	005	S	99L0638	08/25/99	09/22/99
CADMUM, TOTAL	005	S	99L0624	08/25/99	09/14/99
CHROMIUM, TOTAL	005	S	99L0624	08/25/99	09/14/99
COPPER, TOTAL	005	S	99L0624	08/25/99	09/14/99
MERCURY, TOTAL	005	S	99C0256	08/25/99	08/30/99
NICKEL, TOTAL	005	S	99L0624	08/25/99	09/14/99

015

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/27/99

RFW LOT # : 9908L906

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
LEAD, TOTAL	005	S	99L0624	08/25/99	09/14/99	09/15/99
ANTIMONY, TOTAL	005	S	99L0624	08/25/99	09/14/99	09/15/99
SELENIUM, TOTAL	005	S	99L0624	08/25/99	09/14/99	09/15/99
THALLIUM, TOTAL	005	S	99L0624	08/25/99	09/14/99	09/15/99
VANADIUM, TOTAL	005	S	99L0624	08/25/99	09/14/99	09/15/99
ZINC, TOTAL	005	S	99L0624	08/25/99	09/14/99	09/15/99

B0W6B1

SILVER, TOTAL	006	S	99L0638	08/25/99	09/22/99	09/23/99
ARSENIC, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99
BARIUM, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99
BERYLLIUM, TOTAL	006	S	99L0638	08/25/99	09/22/99	09/23/99
CADMIDIUM, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99
CHROMIUM, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99
COPPER, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99
MERCURY, TOTAL	006	S	99C0256	08/25/99	08/30/99	08/30/99
NICKEL, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99
LEAD, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99
ANTIMONY, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99
SELENIUM, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99
THALLIUM, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99
VANADIUM, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99
ZINC, TOTAL	006	S	99L0624	08/25/99	09/14/99	09/15/99

B0W693

SILVER, TOTAL	007	S	99L0638	08/25/99	09/22/99	09/23/99
ARSENIC, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99
BARIUM, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99
BERYLLIUM, TOTAL	007	S	99L0638	08/25/99	09/22/99	09/23/99
CADMIDIUM, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99
CHROMIUM, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99
COPPER, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99
MERCURY, TOTAL	007	S	99C0256	08/25/99	08/30/99	08/30/99
NICKEL, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99
LEAD, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99
ANTIMONY, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99

016

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/27/99

RFW LOT # :9908L906

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99
THALLIUM, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99
VANADIUM, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99
ZINC, TOTAL	007	S	99L0624	08/25/99	09/14/99	09/15/99

BOW698

SILVER, TOTAL	008	S	99L0638	08/25/99	09/22/99	09/23/99
ARSENIC, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99
BARIUM, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99
BERYLLIUM, TOTAL	008	S	99L0638	08/25/99	09/22/99	09/23/99
CADMIDIUM, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99
CHROMIUM, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99
COPPER, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99
MERCURY, TOTAL	008	S	99C0256	08/25/99	08/30/99	08/30/99
NICKEL, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99
LEAD, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99
ANTIMONY, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99
SELENIUM, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99
THALLIUM, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99
VANADIUM, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99
ZINC, TOTAL	008	S	99L0624	08/25/99	09/14/99	09/15/99

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L0638	N/A	09/22/99	09/23/99
SILVER, TOTAL	MB1	S	99L0638	N/A	09/22/99	09/23/99
ARSENIC LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99
ARSENIC, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99
BARIUM LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99
BARIUM, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99
BERYLLIUM LABORATORY	LC1 BS	S	99L0638	N/A	09/22/99	09/23/99
BERYLLIUM, TOTAL	MB1	S	99L0638	N/A	09/22/99	09/23/99
CADMIDIUM LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99
CADMIDIUM, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99
CHROMIUM LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99
CHROMIUM, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99
COPPER LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99

017

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-078

DATE RECEIVED: 08/27/99

RFW LOT # : 9908L906

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION EXTR/PREP	ANALYSIS	
COPPER, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99
MERCURY LABORATORY	LC1 BS	S	99C0256	N/A	08/30/99	08/30/99
MERCURY, TOTAL	MB1	S	99C0256	N/A	08/30/99	08/30/99
NICKEL LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99
NICKEL, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99
LEAD LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99
LEAD, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99
ANTIMONY LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99
ANTIMONY, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99
SELENIUM LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99
SELENIUM, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99
THALLIUM LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99
THALLIUM, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99
VANADIUM LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99
VANADIUM, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99
ZINC LABORATORY	LC1 BS	S	99L0624	N/A	09/14/99	09/15/99
ZINC, TOTAL	MB1	S	99L0624	N/A	09/14/99	09/15/99

018

9908L906

Custody Transfer Record/Lab Work Request Page 1 of 1



AII

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) ~~portable~~
~~water lab~~
metals

Client <u>TNU - Hanford B99-078</u>			Refrigerator # <u>1 6-1</u>						<u>6 6 6</u>				
Est. Final Proj. Sampling Date			# / Type Container <u>Liquid</u>										
Project # <u>10985-001-001-9999-00</u>			Solid <u>lg lg-1</u>						<u>lg lg</u>				
Project Contact/Phone #			Volume <u>Liquid</u>						<u>500 250 ltr</u>				
RECRA Project Manager <u>CG</u>			Solid <u>250 500-1</u>										
QC Spec <u>STD</u> Del <u>STD</u> TAT <u>30 day</u>			Preservatives			ORGANIC			INORG				
Date Rec'd <u>8/27/99</u> Date Due <u>9/26/99</u>			ANALYSES REQUESTED →			VOA	BNA	Pest/PCB	Herb	Metal	CN		
Account #													
MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe Other F - Fish	Lab ID	Client ID/Description		Matrix QC Chosen (✓)	Matrix	Date Collected	Time Collected	RECRA LabNet Use Only					
								MS	MSD	0624H	0625H	OPCB	8827H OPCSC
		1	99				1051						
		2	97				1004						
		3	94				1926						
		4	92				0845						
		5	93				1118						
		6	93				0909						
		7	93				1032						
	8	98											

BATCH
WASTE

Run matrix QC

Special Instructions:

Ref # B99-078

9/21/99 Waste

Code changed to
Batch wastemet₁ = As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se,

2. Ag, V, Zn, Hg, ICRG

8/20/99 IN3N2 canceled

Aug₁ = Fe₂O₃, ICCL, ICFL, ICNO₂, ICNO₃,

8/20/99 4. ICP04, ICS04, ISFD, INH3N, ICNT0

5. OPCSC = ethanol + propanal

*425379528750-4.2°C, *423579528749-*5.1°C *4470545931-3.8°C

BATCH
WASTE

Relinquished by	Received by	Date	Time
FedEx	Janson	8/27/99	0930

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

Discrepancies Between
Samples Labels and
COC Record? Y or N
NOTES:

11/3/99
SB and TL added to all metals
samples per client

Samples were:
1) Shipped or
Hand Delivered

Airbill # 2) Ambient or Chilled 3) Received in Good Condition 4) Labels Indicate Properly Preserved 5) Received Within Holding Times

COC Tape was:
1) Present on Outer Package Y or N

2) Unbroken on Outer Package Y or N3) Present on Sample Y or N4) Unbroken on Sample Y or NCOC Record Present Upon Sample Rec't Y or NCooler Temp. °C

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-078-87	Page 1 of 21 5/21 8-29-29
Collector Bowers/Porter/Nielson	Company Contact Chris Gearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-2 >15' bgs	22'-23'	SAF No. B99-078	
Ice Chest No. GWS 130	Field Logbook No. EL-1511	Method of Shipment Federal Express		
Shipped To TMA/RECREA 5/20 8-27-99	Offsite Property No. A99023D	Bill of Lading/Air Bill No. 4235 7952 874P1		
		COA B20CW1-671C		

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS	Matrix
Relinquished By <i>Brent Rector</i>	Date/Time 8/25/99/14:00	Received By Peter JB	Date/Time 8/25/99/14:00	See chain of custody comments on SAF B99-078. COLLECTOR UNAVAILABLE DESIGN CO. (1) ICP Metals - 6010A (Superrate) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471-(CV); Chromium Hex - 7196 (2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030- Total Cyanide - 9010 4235 7952 8750 4.2	Soil Water Vapor Other Solid Other Liquid
Relinquished By <i>RF61B</i>	Date/Time 8/26/99 11:00	Received By CTRIE/Chico	Date/Time 8/26/99 11:00		
Relinquished By <i>CTRIE/Chico</i>	Date/Time 8/26/99 14:00	Received By FEDEX	Date/Time	4235 7952 8749 5.1	
Relinquished By <i>FeDEX</i>	Date/Time 8/27/99/0930	Received By <i>D. J. Smith</i>	Date/Time 8/27/99/0930	4476545 931 3.8	Date/Time
LABORATORY SECTION	Received By	Title		Disposed By	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method				Date/Time

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							B99-078-86		Page 1 of 1 8/20/99			
Collector Bowers/Porter/Nielson		Company Contact Chris Gearlock		Telephone No. 372-9574		Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days				
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-2 >15' bgs 281-281		SAF No. B99-078										
Ice Chest No. GWS 130		Field Logbook No. EL-1511		Method of Shipment Federal Express										
Shipped To TMA/RECRA 8/25/99		Offsite Property No. A990230		Bill of Lading/Air Bill No. 4235 7952 8749										
				COA B20CW1 671C										
POSSIBLE SAMPLE HAZARDS/REMARKS			Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	
			Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
			No. of Container(s)	1	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage			Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL	
SAMPLE ANALYSIS				Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions	
Sample No.	Matrix *	Sample Date	Sample Time											
B0W699	Soil	8/25/99	10:51						X X	X X				
CHAIN OF POSSESSION		Sign/Print Names						SPECIAL INSTRUCTIONS				Matrix *		
Relinquished By Brent Porte	Date/Time 8/25/99/14:00	Received By Peter SB	Date/Time 8/25/99/14:00	<p>See chain of custody comments on SAF B99-078.</p> <p>COLLECTOR UNAVAILABLE TO SIGN COC</p> <p>(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471-(CV); Chromium Hex - 7196</p> <p>(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010</p>						<p>Soil Water Vapor Other Solid Other Liquid</p>				
Relinquished By RFB 1B	Date/Time 8/26/99 11:00	Received By TRICE/Chic	Date/Time 8/26/99 11:00											
Relinquished By TRICE/Chic	Date/Time 8/26/99 14:00	Received By FEDEX	Date/Time											
Relinquished By Eco Ex	Date/Time 8/27/99/0930	Received By D. Agnew	Date/Time 8/27/99/0930											
LABORATORY SECTION	Received By							Date/Time						
FINAL SAMPLE DISPOSITION	Disposal Method							Disposed By			Date/Time			

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B99-078-84		Page 1 of 2 8/25/99	
Collector Bowers/Porter/Nielson		Company Contact Chris Cearlock Telephone No. 372-9574			Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days		
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-2 >15' bgs 15'-16'			SAF No. B99-078						
Ice Chest No. GWS 130		Field Logbook No. EL-1511			Method of Shipment Federal Express						
Shipped To TMA/RECRA 8/25/99		Offsite Property No. A990230			Bill of Lading/Air Bill No. 4235 7952 8749						
					COA B20CW1 671C						

POSSIBLE SAMPLE HAZARDS/REMARKS Special Handling and/or Storage	Preservation	None	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C
	Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	I	I	I	I	I	I	I	I	I	I
Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	1000mL	

SAMPLE ANALYSIS											
Sample No.	Matrix *	Sample Date	Sample Time								
BOW697	Soil	8/25/99	10:04						X	X	X
									X	X	X

CHAIN OF POSSESSION	Sign/Print Names		SPECIAL INSTRUCTIONS	Matrix *
Relinquished By: Brent Port	Date/Time 8/25/99/14:10	Received By Peter JB	See chain of custody comments on SAF B99-078. COLLECTOR UNAVAILABLE TO SIGN LOC (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010	Soil Water Vapor Other Solid Other Liquid
Relinquished By: RF613	Date/Time 8/26/99 11:00	Received By CTUCE/Chic		
Relinquished By: CTUCE/Chic	Date/Time 8/26/99 14:00	Received By FEDEX		
Relinquished By: D. FedEx	Date/Time 8/27/99/0930	Received By D. FedEx		
LABORATORY SECTION	Received By		Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method		Disposed By	Date/Time

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-078-81

Page 1 of 1

Collector Bowers/Porter/Nielson	Company Contact Chris Gearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-2 <15' bgs	14'-17'	SAF No. B99-078		
Ice Chest No. ETC6-96059	Field Logbook No. EL-1511		Method of Shipment Federal Express		
Shipped To TMA/RECRA 0708-25-99	Offsite Property No. N/A		Bill of Lading/Air Bill No. 1/A		

504

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.	Matrix *
Relinquished By <i>Brent Park</i>	Date/Time 8/25/99/1410	Received By <i>Defer J/B</i>	Date/Time 8/25/99/1410	(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196	Soil
Relinquished By <i>Ref 1-B 8-26-99 0800</i>	Date/Time 8-26-99 0800	Received By <i>R.F. 0800</i>	Date/Time 8-26-99	(2) NO2-NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010	Water
Relinquished By <i>R.F. 0800 / R.F. 0800 8-26-99</i>	Date/Time 1400	Received By <i>FedEx</i>	Date/Time	(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241	Vapor
Relinquished By <i>FedEx 8-27-99 0930</i>	Date/Time 8-27-99 0930	Received By <i>Dynamit 8-27-99 0930</i>	Date/Time	COLLECTOR UNAVAILABLE TO SIGN CO.C.	Other Solid
LABORATORY SECTION	Received By	Title			Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By			Date/Time

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							B99-078-79	Page 1 of 1			
Collector Bowers/Porter/Nielson		Company Contact Chris Cealock		Telephone No. 372-9574		Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days			
Project Designation 200 Area Source characterization - 200-CW-I OU		Sampling Location GP-2 <15' bgs		10/25/99		SAF No. B99-078							
Ice Chest No. ERC 56 059		Field Logbook No. EL-1511				Method of Shipment Federal Express							
Shipped To TMARECRA 070 8-25-99		Offsite Property No. N/A				Bill of Lading/Air Bill No. N/A							
						COA B20CW1-1671C							
POSSIBLE SAMPLE HAZARDS/REMARKS Special Handling and/or Storage				Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None	
				Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	
				No. of Container(s)	1	1	1	1	1	1	1	1	
				Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL	
SAMPLE ANALYSIS				Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.		
Sample No.	Matrix *	Sample Date	Sample Time										
BOW692	Soil	8/25/99	08:45			X	X	X	X		8/26/99		
CHAIN OF POSSESSION		Sign/Print Names				SPECIAL INSTRUCTIONS See chain of custody comments on SAF B99-078.					Matrix *		
Relinquished By Brent Port	Date/Time 8/25/99/1410	Received By Refer IRB	Date/Time 8/25/99/1410								Soil		
Relinquished By Kef J-B	Date/Time 8-26-99 0800	Received By J. Fidell	Date/Time 8-26-99								Water		
Relinquished By J. Fidell	Date/Time 8-26-99 1400	Received By R.Fidell	Date/Time								Vapor		
Relinquished By Geo Ex	Date/Time 8-27-99/0930	Received By D. Agnew	Date/Time 8-27-99/0930								Other Solid		
													Other Liquid
LABORATORY SECTION		Received By				Title					Date/Time		
FINAL SAMPLE DISPOSITION		Disposal Method				Disposed By					Date/Time		

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							B99-078-88	Page 1 of 1 8/28/99			
Collector Bowers/Porter/Nielson		Company Contact Chris Gearlock		Telephone No. 372-9574		Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days			
Project Designation 200 Area Source characterization - 200-CW-1 OU		Sampling Location GP-2 >15' bgs		24-25'		SAF No. B99-078							
Ice Chest No. EBC 96-051		Field Logbook No. EL-1511				Method of Shipment Federal Express							
Shipped To TMVRECRA 8/25/99		Offsite Property No. ATP A99023 Ø		Bill of Lading/Air Bill No. 4235 7952 8750									
		RE 8-26-99				COA B20CW1 671C							
POSSIBLE SAMPLE HAZARDS/REMARKS			Preservation	None	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	
			Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	aG	aG
			No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Special Handling and/or Storage			Volume	60mL	60mL	60mL	60mL	120mL	250mL	250mL	500mL	500mL	
SAMPLE ANALYSIS				Isotopic Uranium	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1- Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - 8270A (TCL); TPH-Diesel Range + WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.
Sample No.	Matrix *	Sample Date	Sample Time										
B0W6B1	Soil	8/25/99	11:18						X	X	X	X	
CHAIN OF POSSESSION		Sign/Print Names						SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By <i>Brent Porter</i>		Date/Time 8/25/99/1400	Received By <i>Refer JB</i>	Date/Time 8/25/99/1410	See chain of custody comments on SAF B99-078.						Soil		
Relinquished By <i>Kef 1-B</i>		Date/Time 8-26-99 0800	Received By <i>R. Gearlock</i>	Date/Time 8-26-99							Water		
Relinquished By <i>R. Gearlock</i>		Date/Time 8-26-99	Received By <i>R. Gearlock</i>	Date/Time 8-26-99							Vapor		
Relinquished By <i>GeoEx</i>		Date/Time 8-27-99/0930	Received By <i>GeoEx</i>	Date/Time 8-27-99/0930	collector not available to sign COC						Other Solid		
LABORATORY SECTION		Received By							Title		Date/Time		
FINAL SAMPLE DISPOSITION		Disposed Method						Disposed By		Date/Time			

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST							B99-078-80		Page 1 of 1	
Collector Bowers/Porter/Nielson		Company Contact Chris Gearlock		Telephone No. 372-9574		Project Coordinator TRENT, SJ		Price Code 8N		Data Turnaround 45 Days		
Project Designation 200 Area Source characterization - 200-CW-I OU		Sampling Location GP-2 <15' bgs		12.5'-13.4'		SAF No. B99-078						
Ice Chest No. ER 5-96-051		Field Logbook No. EL-1511				Method of Shipment Federal Express						
Shipped To AMARECRA 8/20/99		Offsite Property No. A 990230				Bill of Lading/Air Bill No. 4235 7952 8750						
						COA B20CW1 671C						
POSSIBLE SAMPLE HAZARDS/REMARKS				Preservation	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None
				Type of Container	aG	aG	aG	aG	aG	aG	aG	aG
				No. of Container(s)	1	1	1	1	1	1	1	1
Special Handling and/or Storage				Volume	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	1000mL
SAMPLE ANALYSIS				Isotopic Uranium	Neptunium-237	VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Propanol, Ethanol}	pH (Soil) - 9045	Semi-VOA - R270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	
Sample No.	Matrix *	Sample Date	Sample Time									
B0W693	Soil	8/25/99	09:09			X	X	X	X	X	Doug M	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By <i>Brent Bowers</i>		Date/Time 8/25/99/1410	Received By Refer SB	Date/Time 8/25/99/1410		See chain of custody comments on SAF B99-078.				Soil Water Vapor Other Solid Other Liquid		
Relinquished By <i>RFB 1-B</i>		Date/Time 8-26-99 0800	Received By R.F.Bell	Date/Time 8-26-99 0800		(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196						
Relinquished By <i>R.F.Bell/R.F. Bell</i>		Date/Time 8-26-99 1400	Received By Real Ex	Date/Time 8-26-99 1400		(2) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010						
Relinquished By <i>Real Ex</i>		Date/Time 8-27-99/0930	Received By D. Agnew	Date/Time 8-27-99/0930		(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241}; Strontium-89,90 -- Total Sr; Total Uranium (Uranium); Isotopic Plutonium; Isotopic Thorium (Thorium-232); Americium-241						
LABORATORY SECTION		Received By			Title	collector not available to sign COC				Date/Time		
FINAL SAMPLE DISPOSITION		Disposal Method			Disposed By					Date/Time		

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-078-85

Page 1 of 21

8-21 8-35-99

Collector Bowers/Porter/Nielson	Company Contact Chris Gearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N	Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-1 OU	Sampling Location GP-2 >15' bgs	17-5 ~18-5	SAF No. B99-078		
Ice Chest No. ERG 96-051	Field Logbook No. EL-1511		Method of Shipment Federal Express		
Shipped To IMARECRA 8/18/99	Offsite Property No. A990230		Bill of Lading/Air Bill No. 4235 7952 8750		
			COA B206WT + B20CW1 671C		

CHAIN OF POSSESSION	Sign/Print Names		SPECIAL INSTRUCTIONS	Matrix *
Relinquished By <i>Brent Potts</i>	Date/Time 8/25/99/1400	Received By <i>Refer 1B</i>	Date/Time 8/25/99/1400	Soil
Relinquished By <i>Ref 1. B 8-26-99 0800</i>	Date/Time 8/26/99/0800	Received By <i>R.F. Library</i>	Date/Time 8/26/99	Water
Relinquished By <i>K. Loox R.F. Library 8-26-99</i>	Date/Time 8/26/99	Received By <i>Fed Ex</i>	Date/Time	Vapor
Relinquished By <i>Fed Ex 8-27-99/0930</i>	Date/Time 8/27/99/0930	Received By <i>D. Johnson</i>	Date/Time 8/27/99/0930	Other Solid
LABORATORY SECTION	Received By	Title	Disposed By	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method			Date/Time